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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/987,164	11/13/2001	Adrian P. Sparks	Q67243	6469
116	7590	07/13/2005	EXAMINER	
PEARNE & GORDON LLP 1801 EAST 9TH STREET SUITE 1200 CLEVELAND, OH 44114-3108			SINGH, DALZID E	
			ART UNIT	PAPER NUMBER
			2633	

DATE MAILED: 07/13/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/987,164

Applicant(s)

SPARKS ET AL.

Examiner

Dalzid Singh

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 February 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,3-8 and 10-18 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,3-8 and 10-15 is/are rejected.
- 7) ☒ Claim(s) 16-18 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☐ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 2/26/02; 8/25/03.
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1,3, 4, 10-12 and 15 are rejected under 35 U.S.C. 102(b) as being anticipated by Fee (US Patent No. 6,108,113).

Regarding claim 1, Fee discloses a system for hybrid electronic/photonic switching of traffic in a node of a communications network (as shown in Figs. 3B, 3C and 3D), the system comprising:

a plurality of interfaces (such as plurality of LTE TX) adapted to translate respective traffic streams between corresponding electronic and optical signals (the LTE (TX) translates electrical signal from electrical digital cross-connect switch (DCS) (310) to optical signal going into fiber (330, 332 or 334); also see col. 3, lines 46-52), the plurality interfaces comprising:

at least one working interface (working interface (LTE) is the interface associated with working lines or fibers); and

at least one protection interface (protection interface (LTE) is the interface associated with protection line or fiber), a number of the protection interfaces being selected based on a probability of failure of a working interface (there is one protection interface selected for failure of one working fiber);

an electronic cross-connect (EXC) or (electronic DCS) adapted to selectively map an electronic signal through a selected one of the interfaces (as shown in Figs. 3B, 3C and 3D, Fee shown that the electronic DCS (310) selectively map an electrical signal between normal condition and fault condition; see col. 2, lines 19-24 and col. 34-38; for example, if the electronic switch (DCS) selects or maps a connection to fiber (P), then the electrical signal is selected or mapped to interface (LTE (TX)) corresponding to fiber (P)); and

a photonic cross-connect (PXC) or optical crossconnect (OCCS) adapted to selectively couple an optical signal between the selected interface and a selected one of at least two optical channels of the communications network (as shown in Fig. 3D, optical signal between the selected interface (for example, the selected interface (LTE (TX)) corresponding to fiber (P)) is selectively coupled to one of at least two optical channels (optical channels such as W1 or W2 or P, located on fiber span between site B and C; see col. 3, lines 65-67 to col. 4, lines 1-2, Fee discloses that the optical switch selectively forms optical connections among various input and output ports).

Regarding claim 3, as shown in the figures, Fee shows that a number of working interfaces corresponds with a number of working channels of the communications network (for example, as shown in the Figs. 3B, 3C and 3D, on site A, there are shown working interfaces (LTE (TX)) corresponding to working fibers (W1) and (W2) and protection interface (LTE (TX)) corresponding to protection fiber (P)).

Regarding claim 4, as discussed above, each working interface is adapted to translate between an electronic signal and a corresponding optical signal having a

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substantially fixed predetermined wavelength (for example, working interface (LTE (TX)) is coupled to optical fiber working fiber (W1) and to the DCS, which outputs electrical signal; see col. 2, lines 4-15, Fee discussed that the interface (LTE) transmit optical signal).

Regarding claim 10, Fee discloses that the protection interface is adapted to translate between an electronic signal and a corresponding optical signal having a selected wavelength (as shown in Figs. 3B, 3C and 3D, the interface (LTE (TX)), corresponding to working (W1, W2) fibers and protection fiber (P), translates electrical signal from electronic switch (DCS) to optical signal for optical switch (OCCS); see col. 3, lines 43-52; since the electrical signal is converted to optical signal, therefore the optical signal must be at a particular wavelength; in col. 12, lines 5-6, Fee discloses the WDM system comprises of possible 512 wavelengths, therefore there must at least one particular wavelength selected for transmission of data signal; see Figs. 4A, 4B, 5, 6A, 6B and 9, where Fee shows laser diode (LD) to transmit a particular wavelength).

Regarding claim 11, as discussed above, Fee discloses that the wavelength is dynamically selected from a set of channel wavelengths of the network (in col. 13, lines 47-60, Fee discloses wavelength utilization table for the purpose of traffic management and restoration. Therefore, the wavelength utilization table of Fee can be used to select wavelength in case of failure (for purpose of restoration), hence the wavelength is dynamically selected).

Regarding claim 12, as discussed above, Fee shows that the protection interface comprises either one or both of:

a wide-band optical detector adapted to detect an optical signal having a wavelength corresponding to any channel wavelength of the network (since the claim requires either one or both, this limitation is not considered); and

a laser adapted to generate an optical signal having the selected wavelength (see col. 2, lines 6-9, Fee discloses that the LTE comprises of semiconductor laser; as shown in Figs. 3B, 3C and 3D, there are plurality of interfaces (LTE (TX)); the protection interface (LTE (TX)), which correspond to the protection fiber (P) comprises of semiconductor laser to emit optical signal).

Regarding claim 15, Fee discloses that a control system adapted to control operation of the plurality of interfaces (LTE (TX)), the EXC (DCS) (210) and the PXC or OCCS (see col. 2, lines 54-58).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 5 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fee (US Patent No. 6,108,113).

Regarding claim 5, Fee discloses transmitting a predetermined wavelength as discussed above and differs from the claimed invention in that Fee does not disclose that the predetermined wavelength is determined during provisioning of the interface in

accordance with a design of the communications network. However, the network system, as discussed above, was design to communicate with various different sites through plurality of transmission links and interfaces. It is well known that in designing of a communication network, database of look-up table is created, containing wavelengths corresponding to different interfaces and transmission lines. Therefore, it would have been obvious to an artisan of ordinary skill at the time the invention was made to provide a predetermined wavelength of the interface during provision of the communication network. One of ordinary skill in the art would have been motivated to do such in order to set a particular wavelength to a particular interface or transmission link and in the event that a failure occur, a different wavelength can be selected by selecting a different interface.

Regarding claim 6, as discussed above, Fee discloses that the predetermined wavelength corresponds with a channel wavelength of at least one working channel of the network (in col. 13, lines 47-50, Fee discloses routing of wavelength, therefore, it would have been obvious that initially there is a predetermined wavelength corresponds with a channel wavelength of at least one working channel before the routing of the wavelength channel).

5. Claims 7, 8, 13 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fee (US Patent No. 6,108,113) in view of Yin et al (US Patent no. 6,246,707).

Regarding claim 7, as discussed above and shown in Fig. 4A, Fee shows laser diode (4A) for generating an optical signal having the predetermined wavelength and differ from the claimed invention in that Fee does not specifically disclose that the laser is a narrow-band laser. However, laser diode which generate narrow band optical signal is well known. Yin et al is cited to show such well known concept. In col. 2, lines 64-67, Yin et al teach the use of laser which generate narrow band signal. Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to provide a laser which generate narrow band (i.e., narrow band laser) to the system of Fee as taught by Yin et al. One of ordinary skill in the art would have been motivated to do such in order to provide high conversion efficiency at high repetition rate and hence provide greater transmission capacity.

Regarding claim 8 and 14, as discussed above and shown in Fig. 4A, Fee shows laser diode for generating an optical signal having the predetermined wavelength and differ from the claimed invention in that Fee does not specifically disclose that the laser is a tunable laser. However, tunable laser diode is well known. Yin et al is cited to show such well known concept. In col. 2, lines 64-65, Yin et al teach the use of tunable laser. Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to provide a tunable laser to the system of Fee as taught by Yin et al. One of ordinary skill in the art would have been motivated to do such in order to adjust the laser to output a desired wavelength.

Regarding claim 13, as discussed above and shown in Fig. 4A, Fee shows laser diode for generating an optical signal having the selected wavelength and differ from the

claimed invention in that Fee does not specifically disclose that the laser is a narrow-band laser. However, laser diode which generate narrow band optical signal is well known. Yin et al is cited to show such well known concept. In col. 2, lines 64-67, Yin et al teach the use of laser which generate narrow band signal. Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to provide a laser which generate narrow band (i.e., narrow band laser) to the system of Fee as taught by Yin et al. One of ordinary skill in the art would have been motivated to do such in order to provide high conversion efficiency at high repetition rate and hence provide greater bandwidth.

Allowable Subject Matter

6. Claims 16-18 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

7. Applicant's arguments filed 07 February 2005 have been fully considered but they are not persuasive.

Applicant argues that the reference, Fee, does not provide any guidance whatsoever concerning the number of protection fiber, or how that number is selected. However, as shown in Figs. 3B, 3C and 3D, Fee shows one protection fiber designated as (P). The claim recites "at least one protection interface, a number of the protection

interfaces being selected based on a probability of failure of a working interface". As shown in the figure, Fee shows one protection interface (LTE) associated with the protection fiber (P). The protection interface is selected in the event that there is a failure to one of the working fiber (see Figs. 3B, 3C and 3D), therefore, the number (one) protection interface is selected based on a probability of failure of a working interface.

Conclusion

8. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dalzid Singh whose telephone number is (571) 272-3029. The examiner can normally be reached on Mon-Fri 9am - 5pm.

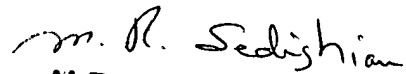
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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan can be reached on (571) 272--3022. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

DS

July 8, 2005


M. R. SEDIGHIAN
PRIMARY EXAMINER